equal, the ratio between electrode areas is given by the ratio of the widths w**1** and w**2**. Thus, in some embodiments, the width w**2** of the reference electrode **722** is at least five times greater than the width w**1** of the working electrode **720**.

**[0093]** The distance d**1** between the electrodes **720**, **722** can be substantially constant along the length of the electrodes **720**, **722** (e.g., parts of the electrodes **720**, **722** can be oriented as parallel bars and/or as concentric rings such that the distance d**1** separating them is approximately constant). In some embodiments, the distance d**1** is between about 10 micrometers and about 500 micrometers.

**[0094]** By situating the working electrode **720** and the reference electrode **722** on the same surface of the substrate **730**, the electrodes **720**, **722** can be arranged to be approximately coplanar, and the distance d**1** separating the two electrodes **720**, **722** can be measured substantially within a plane of the two electrodes.

**[0095]** The polymeric material **710** includes an interposed portion **712** that is situated between the two electrodes **720**, **722**. In this configuration, electrical current that is conveyed between the electrodes **720**, **722** is passed through the interposed portion **712** of polymeric material **710**. For example, such a current can be conveyed ionically (e.g., by electrolytes from the tear film that are absorbed in the polymeric material **710**) while an amperometric current is generated by electrochemical reactions at the working electrode **720**. The interposed portion **712** thus provides a current carrying medium between the electrodes **720**, **722** that is analogous to an electrolyte-containing fluid medium. However, the interposed portion **712** of the polymeric material **710** can have a greater electrical resistance than a typical electrolyte-containing fluid medium. Because of the relatively high electrical resistance of the interposed portion **712**, the current conveyed between the electrodes results in a voltage drop across interposed portion **712**.

**[0096]** However, by configuring working electrode **720** with sufficiently small dimensions (e.g., with a width w**1** less than 25 micrometers), the current conveyed between electrodes **720** and **722** can be sufficiently small such that the voltage drop caused by the resistance of interposed portion **712** of the polymeric material **710** is inconsequential to the operation of the electrochemical sensor.

**[0097]** While such a current is conveyed between the two electrodes, the current density through the two electrodes **720**, **722** is inversely proportional to the area of the respective electrodes **720**, **722**. As a result, the reference electrode **722** experiences a smaller current density than the working electrode **720** (e.g., at least five times less). The smaller current density allows the voltage on the reference electrode **722** to be relatively less affected by the conveyed current and thereby facilitates the operation of a potentiostat (or other control module) to apply a stable voltage difference between the electrodes **720**, **722** while measuring the amperometric current through the working electrode.

**[0098]** A reagent layer **724** can be localized proximate the working electrode **720**. The reagent layer **724** can sensitize the two-electrode electrochemical sensor to an analyte of interest For example, glucose oxidase can be employed to detect glucose by catalyzing glucose oxidation to generate hydrogen peroxide, which is then oxidized at the working electrode **720**. The reagent layer **724** can be fixed to wholly or partially surround the working electrode **720**, for example. In some embodiments, the reagent layer **724** can be fixed proximate only the working electrode **720**, and not the reference electrode **722**. In some embodiments, a reagent layer can be overlaid to cover both electrodes **720**, **722**.

**[0099]** FIG. **7**B illustrates an example non-coplanar arrangement for electrodes in a two-electrode electrochemical sensor. In particular, FIG. **7**B shows a perspective cross-sectional view of electrodes mounted on a substrate **760** that is covered by a layer polymeric material **740**. Thus, the two-electrode electrochemical sensor includes a working electrode **750** and a reference electrode **752**, and the polymeric material **740** includes a portion **741** (indicated by dashed lines) that covers the electrodes **750**, **752**. In some examples, polymeric material **740** has an exposed surface **742** that can be a surface configured to contact mounted to a corneal surface of an eye, similar to the concave surface **226** of the eye-mountable device **210** discussed above in connection with FIG. **2**. The exposed surface **742** can also be suitable for avoiding interference with eyelid motion while an opposing surface of the polymeric material is contact mounted to an eye, similar to the convex surface **224** of the eye-mountable device **210** discussed above in connection with FIG. **2**. Thus, the electrodes **750**, **752** can be mounted to an eye-facing surface and/or an outward facing surface of the substrate **760**.

**[0100]** The substrate **760** can be shaped as a flattened ring suitable for being mounted within an eye-mountable polymeric material, similar to the substrates described above. The reference electrode **752** and the working electrode **750** are mounted to the substrate **740** to be non-coplanar. That is, the electrodes **750**, **752** can be mounted with the working electrode **750** stacked over the reference electrode **752** such that the working electrode **750** is a greater distance from the exposed surface **742** of the polymeric material **740** than the working electrode **750**. As a result, where the exposed surface **742** is mounted over an eye, the working electrode **750** is closer to the surface of the eye than the reference electrode **752** by the distance d**2** separating the two electrodes **750**, **752**. The separation distance d**2** between the two electrodes **750**, **752** is therefore measured transverse to the planes of the two electrodes.

**[0101]** The dimensions of the working electrode **750** and the reference electrode **752**, respectively can be similar to the dimensions of the working electrode **720** and the reference electrode **722** described above in connection with FIG. **7**A. For example, the area of the reference electrode **752** can be at least five times greater than the area of the working electrode **750**.

**[0102]** Current between the electrodes **750**, **752** can be conveyed through an interposed portion **762** of the polymeric material **740**. Electrical current can be carried ionically between the electrodes **750**, **752** through interposed portion **762** in a manner similar to the interposed portion **712** described in connection with FIG. **7**A above.

**[0103]** A reagent layer **754** can be localized proximate the working electrode **750**. The reagent layer **754** can sensitize the two-electrode electrochemical sensor to an analyte of interest For example, glucose oxidase can be employed to detect glucose by catalyzing glucose oxidation to generate hydrogen peroxide, which is then oxidized at the working electrode **750**. The reagent layer **754** can be fixed to wholly or partially surround the working electrode **750**, for example. In some embodiments, the reagent layer **754** can be fixed proximate only the working electrode **750**, without being proximate the reference electrode **752**. In some embodiments, a reagent layer can be overlaid to cover both electrodes **750**, **752**.